

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a computer network that comprises one or more servers providing one or more services to at least one client, and wherein the at least one client~~some~~ accesses to the one or more services through one of the servers during a plurality of sessions created in response to a login request from the at least one client, with at least some of the sessions occurring simultaneously, and wherein access to the one or more services during a particular session may include a charged time portion and a free time portion, may incur an access charge and other access to the one or more services may not incur an access charge, and wherein the at least one client may terminate access to the one or more services in a variety of ways, a method of tracking the at least one client's usage of the one or more services during each session and whether, for each session the access to a service is a charged time portion or a free time portion, the method comprising acts of:

~~a server receiving a session identifier associated with one or more sessions through which the at least one client accesses the one or more services provided by the one or more servers, the one or more sessions having been created in response to a login request from the at least one client;~~

the server receiving at one of the servers one or more metering packets from the at least one client, wherein each of the one or more metering packets being generated at the at least one client and each metering packet being used at the at least one client to store data for tracking usage of one or more services during each session, and each metering packet comprising a data structure for storing the following data:

a session identifier element that links a particular metering packet with a particular session;

~~includes a time element indicating the client's usage of the one or more services, the time element comprising a charged time portion and a free time portion, the charged time portion corresponding to some access to the one or more~~

~~services that incurs an access charge, and a free time portion corresponding to other access to the one or more services that does not incur an access charge; and~~
a sequence number element; and

the server updating a usage database based on the received one or more metering packets ~~by so that the usage database reflects the at least one client's usage of the one or more services provided by the one or more servers.~~

using the sequence number to determine whether each metering packet is redundant of any prior metering packet already stored in the database, and if so, discarding it, and if not, then

storing the metering packet in the database in order to store the data contained in the metering packet, and from which it may be determined from the time element whether the client's usage of the one or more services during the session for that metering packet is a charged time portion or a free time portion.

2. (Original) A method as recited in claim 1, wherein a plurality of metering packets are received over regular, periodic intervals.

3. (Original) A method as recited in claim 1, wherein each of the one or more metering packets is one of a session-ending metering packet and a session-in-progress metering packet.

4. (Original) A method as recited in claim 1, further comprising acts of:
receiving a session key associated with the one or more sessions;
hashing at least a portion of each metering packet and the corresponding session key to generate an authentication element; and
comparing the generated authentication element with a packet authentication element included with each metering packet to determine whether or not each packet is genuine.

5. (Original) A method as recited in claim 4, wherein a login service receives the login request from and negotiates a given session key with the at least one client, and wherein a census service receives the one or more metering packets, the method further comprising an act of the login service sending a hash of the given session key and a session identifier to the census service, such that the received session key is the hash of the given session key.

6. (Previously Presented) A method as recited in claim 5, further comprising:
retrieving an indicator from a configuration database indicating that usage should be tracked for all clients attempting to login.

7. (Original) A method as recited in claim 1, wherein a plurality of metering packets are received and wherein one or more of the plurality of received metering packets are redundant, the method further comprising acts of:

prior to updating the usage database, searching a cache of at least one received metering packet;

if a copy of a particular metering packet is found in the cache, identifying the particular metering packet as redundant and not updating the usage database based on the particular metering packet; and

if a copy of the particular metering packet is not found in the cache, adding the particular metering packet to the cache and updating the usage database based on the particular metering packet.

8. (Original) A method as recited in claim 7, wherein each metering packet comprises a session identifier element and a sequence number element, and wherein finding the particular metering packet in the cache is based on comparing the session identifier element and the sequence number element that are included with each metering packet.

9. (Cancelled).

10. (Currently Amended) A method as recited in claim ~~9~~1, wherein each metering packet further comprises (i) a packet type element, (ii) a sequence number element, (iii) a session identifier element, and (iv) a packet authentication element.

11. (Original) A method as recited in claim 1, further comprising an act of sending one or more headers to the at least one client, wherein the one or more headers include at least one of (i) an indication that the at least one client should track usage of the one or more services provided by the one or more servers, (ii) a unique session identifier, and (iii) a metering interval indicating how frequently the at least one client should send metering packets.

12. (Currently Amended) In a computer network that comprises one or more servers providing one or more services to at least one client, and wherein the at least one client~~some accesses to the one or more services through one of the servers during a plurality of sessions created in response to a login request from the at least one client, with at least some of the sessions occurring simultaneously, and wherein access to the one or more services during a particular session may include a charged time portion and a free time portion, may incur an access charge and other access to the one or more services may not incur an access charge, and wherein the at least one client may terminate access to the one or more services in a variety of ways, a method of tracking the at least one client's usage of the one or more services during each session and whether, for each session the access to a service is a charged time portion or a free time portion, the method comprising steps for:~~

in response to a login request received at one of the servers from the at least one client, a step for communicating from said one server to the at least one client usage tracking parameters;

thereafter a step for one or more metering packets being generated at the at least one client,

each metering packet being used at the at least one client to store data for tracking usage of one or more services during each session, and each metering packet comprising a data structure for storing the following data:

a session identifier element that links a particular metering packet with a particular session; and

a time element indicating the client's usage of the one or more services, the time element comprising a charged time portion and a free time portion;

asaid one server performing a step for identifying one or more sessions through which the at least one client has accesseds the one or more services provided by the one or more servers, the one or more sessions having been created in response to a login request from the at least one client;

the server performing a step for monitoring metering packets that are received from the at least one client corresponding to the one or more sessions, wherein a plurality of metering packets are received that correspond to a single session and that

~~each includes a time element indicating the client's usage of the one or more services;~~
and

the server performing a step for tracking the at least one client's usage of the one or more services during each session ~~provided by the one or more servers~~ based on the received one or more metering packets in order to store data from which it can be determined whether the client's usage of the one or more services during each session is a charged time portion or a free time portion.

13. (Previously Presented) A method as recited in claim 12, wherein the plurality of metering packets includes both a session-ending metering packet and a session-in-progress metering packet.

14. (Previously Presented) A method as recited in claim 12, further comprising a step for authenticating one or more metering packets.

15. (Original) A method as recited in claim 12, further comprising a step for enabling usage tracking in at least one of a configuration database and a database of clients.

16. (Previously Presented) A method as recited in claim 12, wherein a plurality of received metering packets are redundant, the method further comprising a step for discarding one or more of the plurality of received metering packets that are redundant.

17. (Original) A method as recited in claim 12, wherein the time element comprises a charged time portion corresponding to some access to the one or more services that incurs an access charge, and a free time portion corresponding to other access to the one or more services that does not incur an access charge.

18. (Original) A method as recited in claim 17, wherein each metering packet further comprises (i) a packet type element, (ii) a sequence number element, (iii) a session identifier element, and (iv) a packet authentication element.

19. (Original) A method as recited in claim 12, further comprising a step for communicating one or more usage tracking parameters to the at least one client, wherein the one or more usage tracking parameters include at least one of (i) an indication that the at least one client should track usage of the one or more services provided by the one or more servers, (ii) a unique session identifier, and (iii) a metering interval indicating how frequently the at least one client should send metering packets.

20. (Previously Presented) A computer program product for implementing, in a computer network that comprises one or more servers providing one or more services to at least one client, and wherein the at least one client~~some accesses to the one or more services through one of the servers during a plurality of sessions created in response to a login request from the at least one client, with at least some of the sessions occurring simultaneously, and wherein access to the one or more services during a particular session may include a charged time portion and a free time portion, may incur an access charge and other access to the one or more services may not incur an access charge, and wherein the at least one client may terminate access to the one or more services in a variety of ways,~~ a method of tracking at the at least one client's usage of the one or more services during each session and whether, for each session the access to a service is a charged time portion or a free time portion, the computer program product comprising a computer readable medium for carrying machine-executable instructions that implement the method, and the method comprising:

~~a computer readable medium for carrying machine-executable instructions that implement the method, wherein the method comprises steps for:~~

in response to a login request received at one of the servers from the at least one client, a step for communicating from said one server to the at least one client usage tracking parameters;

thereafter a step for one or more metering packets being generated at the at least one client,

each metering packet being used at the at least one client to store data for tracking usage of one or more services during each session, and each metering packet comprising a data structure for storing the following data:

a session identifier element that links a particular metering packet with a particular session; and

a time element indicating the client's usage of the one or more services, the time element comprising a charged time portion and a free time portion;

asaid one server performing a step for identifying one or more sessions through which the at least one client has accesseds the one or more services~~provided by the one or more servers, the one or more sessions having been created in response to a login request from the at least one client;~~

the server performing a step for monitoring metering packets that are received from the at least one client ~~corresponding to the one or more sessions, wherein a plurality of metering packets are received that correspond to a single session and that each includes a time element indicating the client's usage of the one or more services;~~ and

the server performing a step for tracking the at least one client's usage of the one or more services during each session ~~provided by the one or more servers based on the received one or more metering packets in order to store data from which it can be determined whether the client's usage of the one or more services during each session is a~~ charged time portion or a free time portion.

21. (Previously Presented) A computer program product as recited in claim 20, wherein a plurality of metering packets are received that include both a session-ending metering packet and a session-in-progress metering packet.

22. (Previously Presented) A computer program product as recited in claim 20, wherein the method further comprises a step for authenticating the received metering packets.

23. (Previously Presented) A computer program product as recited in claim 20, wherein a plurality of metering packets are received that are redundant, the method further comprising a step for discarding the received metering packets that are redundant.

24. (Original) A computer program product as recited in claim 20, wherein each metering packet further comprises (i) a packet type element, (ii) a sequence number element, (iii) a session identifier element, and (iv) a packet authentication element, and wherein the time element comprises a charged time portion corresponding to some access to the one or more services that incurs an access charge, and a free time portion corresponding to other access to the one or more services that does not incur an access charge.

25. (Original) A computer program product as recited in claim 20, wherein the method further comprises a step for communicating one or more usage tracking parameters to the at least one client, wherein the one or more usage tracking parameters include at least one of (i) an indication that the at least one client should track usage of the one or more services provided by the one or more servers, (ii) a unique session identifier, and (iii) a metering interval indicating how frequently the at least one client should send metering packets.

26 – 29 (Canceled)

30. (Previously Presented) In a computer network that comprises ~~one or more~~ at least one server, the ~~at least one server~~ servers providing one or more services to at least one client that accesses, wherein some access to the one or more services through the at least one server during a plurality of sessions created in response to a login request from the at least one client, with at least some of the sessions occurring simultaneously, and wherein access to the one or more services during a particular session may include a charged time portion and a free time portion, may incur an access charge and other access to the one or more services may not incur an access charge, and wherein the at least one client may terminate access to the one or more services in a variety of ways, a method of tracking the at least one client's usage of the one or more services during each session and whether, for each session the access to a service is a charged time portion or a free time portion, the method comprising acts of:

a client sending a login request to a login service;

accessing, through one or more sessions created in response to the login request, at least one of the one or more services provided by the one or more servers and tracking parameters corresponding to client usage of the one or more services;

generating a plurality of metering packets corresponding to a single session that each includes a time element indicating the client's usage of the one or more services, each metering packet being used at the client to store data for tracking usage of the one or more services during each session, and each metering packet comprising a data structure for storing the following data:

a session identifier element that links a particular metering packet with a particular session; and

a time element indicating the client's usage of the one or more services, the time element comprising a charged time portion and a free time portion; and

sending at least one of the plurality of metering packets to a census service, wherein the census service updates a usage database based on the metering packets so that the usage database reflects the at least one client's usage of the one or more services provided by the one or more servers.

31. (Previously Presented) A method as recited in claim 30, wherein a plurality of metering packets are generated and sent over regular, periodic intervals, and wherein the metering packets include both a session-ending metering packet and a session-in-progress metering packet.

32. (Original) A method as recited in claim 30, further comprising acts of:
receiving a session key associated with the one or more sessions;
hashing at least a portion of each metering packet and the corresponding session key to generate an authentication element; and
storing each authentication element in the corresponding metering packet.

33. (Original) A method as recited in claim 30, further comprising an act of sending redundant metering packets to the census service using a communication protocol that does not guarantee delivery.

34. (Original) A method as recited in claim 30, wherein the time element comprises a charged time portion corresponding to some access to the one or more services that incurs an access charge, and a free time portion corresponding to other access to the one or more services that does not incur an access charge.

35. (Original) A method as recited in claim 34, wherein each metering packet further comprises (i) a packet type element, (ii) a sequence number element, (iii) a session identifier element, and (iv) a packet authentication element.

36. (Original) A method as recited in claim 30, further comprising an act of receiving one or more headers from the login service, wherein the one or more headers include at least one of (i) an indication that the at least one client should track usage of the one or more services provided by the one or more servers, (ii) a unique session identifier, and (iii) a metering interval indicating how frequently the at least one client should send metering packets.

37. (Original) A method as recited in claim 30, further comprising an act of storing metering information in non-volatile memory.

38. (Original) A method as recited in claim 37, further comprising an act of sending the stored metering information to the census service in a subsequent session.

39. (Previously Presented) A computer program product ~~for implementing, in a computer network that comprises one or more servers providing one or more services to at least one client, wherein some access to the one or more services may incur an access charge and other access to the one or more services may not incur an access charge, and wherein the at least one client may terminate access to the one or more services in a variety of ways, a method of tracking the at least one client's usage of the one or more services, comprising:~~

a computer readable medium for carrying machine-executable instructions that implement the method of claim 30.

~~;~~ wherein the method comprises acts of:

sending a login request to a login service;

accessing, through one or more sessions created in response to the login request, at least one of the one or more services provided by the one or more servers;

generating a plurality of metering packets corresponding to a single session that each includes a time element indicating the client's usage of the one or more services; and

sending at least one of the plurality of metering packets to a census service, wherein the census service updates a usage database based on the metering packets so that the usage database reflects the at least one client's usage of the one or more services provided by the one or more servers.

40. (Previously Presented) A computer program product as recited in claim 39, wherein a plurality of metering packets are generated and sent over regular, periodic intervals, and wherein the metering packets include both a session-ending metering packet and a session-in-progress metering packet.

41. (Original) A computer program product as recited in claim 39, wherein the method further comprises acts of:

- receiving a session key associated with the one or more sessions;
- hashing at least a portion of each metering packet and the corresponding session key to generate an authentication element; and
- storing each authentication element in the corresponding metering packet.

42. (Original) A computer program product as recited in claim 39, wherein the method further comprises an act of sending redundant metering packets to the census service using a communication protocol that does not guarantee delivery.

43. (Original) A computer program product as recited in claim 39, wherein the time element comprises a charged time portion corresponding to some access to the one or more services that incurs an access charge, and a free time portion corresponding to other access to the one or more services that does not incur an access charge.

44. (Original) A computer program product as recited in claim 43, wherein each metering packet further comprises (i) a packet type element, (ii) a sequence number element, (iii) a session identifier element, and (iv) a packet authentication element.

45. (Original) A computer program product as recited in claim 39, wherein the method further comprises an act of receiving one or more headers from the login service, wherein the one or more headers include at least one of (i) an indication that the at least one client should track usage of the one or more services provided by the one or more servers, (ii) a unique session identifier, and (iii) a metering interval indicating how frequently the at least one client should send metering packets.

46. (Original) A computer program product as recited in claim 39, the method further comprising an act of storing metering information in non-volatile memory.

47. (Original) A computer program product as recited in claim 46, wherein the method further comprises an act of sending the stored metering information to the census service in a subsequent session.